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ABSTRACT

As part of the comprehensive planning process, once goals are developed, needs established, problems analyzed, and alternative solutions proposed, the decision is made to implement a particular program. The first step toward successful implementation is careful planning of the tasks, activities, personnel, calendar, resources, and evaluation methods necessary to meet the program objectives. Gearing-up follows the planning stage and is in turn followed by full-scale operationalization of the program. A fourth step, based on a continuing evaluation of the program's progress, is the decision to terminate, maintain, or expand the program. This step is distinct from the evaluation performed following implementation. Four implementation models are described briefly: Educational System Planning, PLANS (Providing Local Agencies with New Strategies), Management by Objectives, and the Educational Project Management Instructional System. Techniques to be used in implementation may include Gantt charts, Milestone charts, and such network-based techniques as the precedence diagraming method, program evaluation and review technique (PERT), the critical path method, and flow diagraming. (Author/PGD)

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PROGRAM IMPLEMENTATION

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IMPLEMENTATION IN EDUCATION

A Planning Handbook for Districts

No. 5 in a Series of Handbooks on Comprehensive Planning for Local Education Districts

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June, 1977

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INTRODUCTION

What is in the Handbook?

This Handbook, *Implementation in Education*, provides a general overview of the requirements of planning for program implementation. The Handbook is designed to give working adn.inistrators an understanding of the relationships of day-to-day activities of a program to the larger framework of comprehensive educational planning. The *first* section of the Handbook provides an overview of implementation, how it relates to management and planning, and what it involves. The *second* section provides brief descriptions of several models dealing with program implementation. The Appendix offers coverage of techniques, pitfalls and problems, a definition of terms, and selected references.

How Can You Use the Handbook?

This Handbook, as the others in the series, is to be used as resource material. This is *not* a "how to" manual, but an overview of relevant concepts and techniques considered important to planning program implementation. In providing this general overview it is hoped that readers will begin to ask important and relevant questions about their own involvement in implementing programs. In addition the information needed to pursue techniques and procedures in depth is included.

Who Can Use this Handbook?

This Handbook is intended for people implementing a program or policy. In other words they have a unique set of objectives to reach, a strategy or group of activities to reach the objectives, and the desire or mandate to get started in the implementation process. Depending on the nature of the program, the people could be most logically, central administrators, teachers, program managers, or even parents and students.

PLANNING OVERVIEW

A. WHAT IS COMPREHENSIVE PLANNING?

Educational Planning has not always been logical. Frequently educators have created programs, introduced curricula, developed instructional methods, and prepared budgets without first determining what their plans were intended to

achieve. A comprehensive planning process attempts to correct this serious defect by answering these questions: Where have we been? Where are we now? Where are we going? Where do we want to go? How can we get there? How will we know when we get there? How will we monitor the process? A comprehensive planning process will help to design, implement and evaluate programs tailored to meet the identified school needs and to achieve school goals.

B. GENERAL STEPS IN A PLANNING PROCESS

Commitment To Begin Comprehensive Planning

This procedure is usually initiated by one or more staff members or an administrator who introduces the idea to the district. The school board must then either formally reject or accept the idea of adopting a comprehensive planning process.

Goal Development

This step defines the ends toward which efforts are directed. These ends or goals should express the general desired outcomes of the planning process. This stage can come before or after a needs assessment.

Needs Assessment

This stage determines district and school needs. A need can be defined as the difference between "what is" and "what should be," or lack of something requisite, desirable, or useful. Needs should be related to the learner. All other needs, such as institutional ones, should ultimately relate to learner needs.

Problem Analysis

This stage involves examination of the reasons for the discrepancy between the goals and the needs, identifying the elements of the problem, their causal relationship, the relative impact of each, and the degree to which each can be altered.

Generation of Alternatives

From this examination of the problem flows the development of various alternative solutions. These alternative methods are analyzed in terms of

effectiveness (quality), cost, time, consequences on other goals, impact (quantity), and political feasibility.

Selection of Policies/Programs

Based upon the analysis of the various alternatives in the preceding step, one of the alternatives is chosen for implementation. In this stage, the decision-makers can include the same group involved in earlier stages or a person or group not previously involved in the process.

Implementation

At this point, the selected program and/or policy is developed into a plan of operation and carried out by the administrative mechanism. The people who planned the program need not be involved in its implementation, but the program design should provide for feedback to the implementors in order to give an on-going measure of how well the program is meeting the goals and objectives.

Evaluation

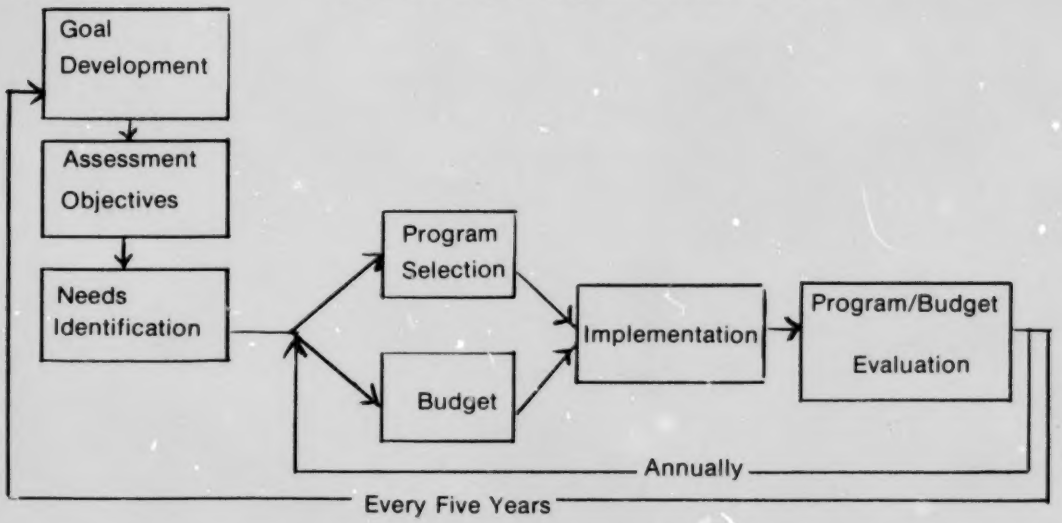
This step examines the success of the implemented programs in achieving the established goals and objectives. Feedback from this stage provides the basis for modifying all the steps of the process in order to improve the attainment of the goals.

Recycle

The entire process is repeated because in a rapidly changing society, goals and needs must be continually redefined to reflect new conditions and new priorities.

A more complete description of the Comprehensive Planning model can be found in the first handbook of this series entitled *Comprehensive Planning in Education.*

Generic Planning Model for T & E *



CONCERNS TO BE CONSIDERED IN EACH STEP

1. Context
2. Communications
3. Involvement
4. Priorities
5. Data Needs
6. Management Process
7. Evaluation

* Compare to the Generic Planning Model found on page 9 in *Comprehensive Planning in Education* (Handbook No. 1)

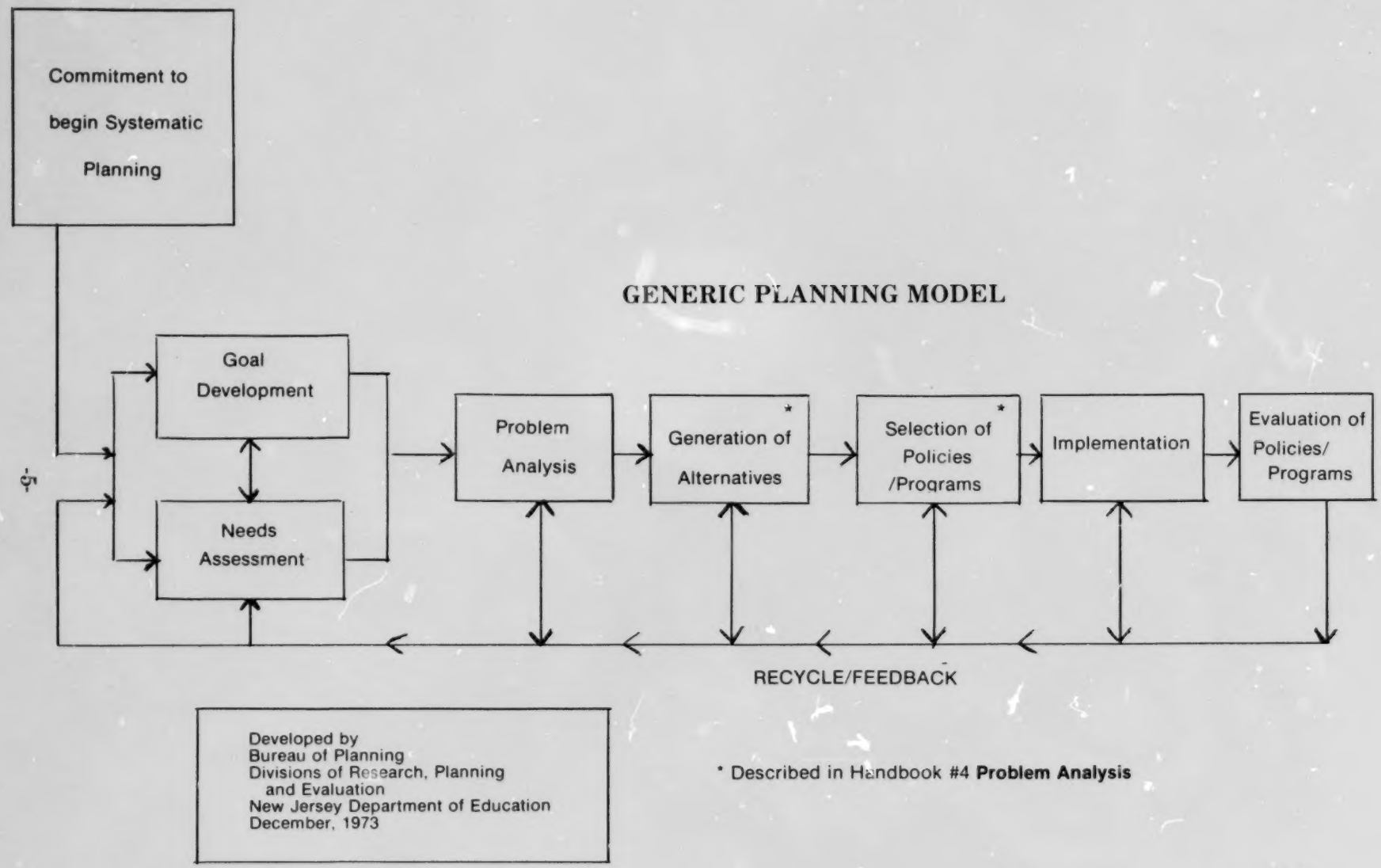

Commitment to begin Systematic Planning
GENERIC PLANNING MODEL
Goal Development
Needs Assessment
Problem Analysis
Generation of Alternatives *
Selection of Policies /Programs *
Implementation
Evaluation of Policies/ Programs
RECYCLE/FEEDBACK
Developed by
Bureau of Planning
Divisions of Research, Planning and Evaluation
New Jersey Department of Education
December, 1973
* Described in Handbook #4 **Problem Analysis**

FIGURE 1

OVERVIEW OF IMPLEMENTATION

Implementation Overview

What is Implementation?

After very careful analysis of possible alternatives, a decision has been made to implement a particular program. The program has been selected because it is feasible in terms of money, time, personnel and its potential effectiveness for solving a problem. The task now facing the planner is getting done what is required and having it done successfully. By definition, to implement means to put into effect according to, or by means of, a definite plan or procedures. To ensure successful implementation, management is necessary. Managing is the act of directing, controlling and monitoring the tasks and activities that are necessary for achievement of the objectives of the program. The first step toward successful implementation is to plan completely all the tasks necessary to reach the outcome objectives of a program, the activities needed to do the tasks, persons responsible for doing the activities, time lines, check points for monitoring progress and resource allocation. The next step is to operationalize that plan. This requires skillful management of personnel, resources and time.

Why Implement?

Of course the obvious answer to this question is to get something done, to actually have a program operationalized. But we usually want to do more than just get it done. We want it done well, we want to achieve certain objectives and we want it done with efficient use of personnel and resources. Therefore a better question might be, "why have an implementation plan?" A set plan for implementation assists a manager in a variety of ways: the implementation plan identifies all the tasks necessary for accomplishing an objective; it helps organize resources and programs to reach objectives; it is a guide to action; it increases motivation to achieve, because activities and time lines are clearly defined. In addition, formative evaluation can be built into an implementation plan, thereby allowing for periodic feedback and changes in the progress of the program. In some instances, various and possible setbacks can be identified ahead of time, thus enhancing the chances of overcoming them. Furthermore, built-in performance standards allow for program and staff appraisals. In other words, a written plan helps communicate and increase chances for success.

There are a number of factors that one should be aware of in order to avoid the pitfalls of the process and make the implementation successful. Contributing to the success of a program is the overall commitment of top administrators. Support

and commitment are always a plus when trying to accomplish objectives or getting a program implemented. The support gives credibility to a project and helps to motivate staff in doing a complete and quality job. Secondly, having realistic time lines and adequate resources contributes to success. Making time lines too short can cause such pressure that the job is not well done or not done at all. Inadequate resources can result in the same problems. Therefore, give yourself enough time and resources, or you will have to cut back on what you are trying to accomplish. Clearly stated objectives and activities cannot be emphasized enough as important factors to successful implementation. Not only does it give all participants a sense of direction and allow for monitoring and evaluation, but it contributes to good morale and motivation of the staff. Another element to successful implementation is flexibility of "the plan". Things do not always go smoothly or on time; therefore you should be free to reassess the situation and reset time lines, change some activities or reassign personnel. To assist a manager in determining the progress or lack of progress during implementation of the plan, it is important to have good reporting and communications procedures and a set of review points throughout the duration of the program so that progress can be monitored and changes made. One last point to successful implementation is having a formative evaluation built into the plan. The whole purpose of the implementation is to accomplish certain objectives to get some improvement or to make a change. An evaluation as part of the implementation allows you to see if your objectives are being accomplished and provides feedback that can be used to make decisions throughout the process (for further information on this process and other techniques see Handbook # 6 — *Evaluation in Education).*

Implementation is usually the point at which most plans fail. Many plans are written and then discarded. Often the implementation of a plan bears no resemblance to what was originally expected to be accomplished. Poor implementation or no implementation at all is usually due to a number of factors that have not been considered or addressed in planning. For example, many times there are parties or groups that are adverse to the program to be implemented. They will do anything to sabotage its success or even to block its implementation completely. These groups, whether in the organization or outside should be identified and possible strategies such as involving them in planning, should be developed and implemented to avoid conflict and gain support. Another pitfall to the implementation process is directly related to accountability and performance standards for staff. An atmosphere of support and teamwork should be fostered and backed up with training necessary for staff to do quality work. Too often what is fostered is an atmosphere of punishment for not completing or not doing quality

work in the program. Many of the other pitfalls to implementing a plan are the negation of those factors necessary for successful implementation. Not having clearly defined objectives and activities, or leaving them implicit, leads to confusion, disorganization, and a failure to complete things that were needed or wanted. Being rigidly set to a plan and not allowing for changes or preparing for contingencies in case of failure or unforseen constraints, can lead to nonfulfillment. Failure to evaluate throughout the implementation process could lead to an unexpected end. The objectives are never accomplished. Successful implementation can never be guaranteed, but by taking into consideration the pitfalls mentioned, one can hopefully come much closer to accomplishing successful implementation of a program. (See Appendix for a more complete list.)

How Does A District/School Prepare for and Implement a Program?

There are a number of processes or models that can be used to plan for the implementation of a program or project and a variety of techniques that can be used by managers and administrators to assist them in operationalizing the plan. These models and techniques will be explained more fully in the Model and Technique sections, but a general overview will be given here. Implementation can be divided into four steps: 1) planning, 2) gear-up, 3) operationalizing and 4) termination/expansion.

In planning for implementation the *first* step is to state program goals and objectives. What is the purpose of the program and what do you hope to accomplish as a result of implementing the program? This generally can be taken from the previous stage of the comprehensive planning process (problem solving), but if it was not done it is very important that it be done at the outset of the implementation process. After the objectives are clearly known, begin by setting down a plan for implementation that identifies all functions and tasks that must be completed to achieve the objectives. These are all the *whats* that need to be accomplished. Once the *whats* have been identified, strategies or *how to do* each of the *whats* is considered. At this level of detail time lines should be attached and the person responsible for completing the strategy or activity identified. it is also helpful to list the product expected from each activity. The easiest and perhaps the clearest method for doing this type of planning is in chart form. (See figure 2) Each description should be kept brief and precise. Laying everything out in this fashion allows for clarity among all people working on the project and for accountability, controlling, and monitoring by the manager.

POSSIBLE PROGRAM PLAN FORMAT

Program Goal _____

Program Objectives _____

Tasks	Starting Date	Completion Date	Location	Involvement	Technical Assistance	In-Service	Review	Decisions	Evaluation	(Days) Time	Costs

FIGURE 2

The *second* step, gear-up, takes its action from the plan generated and progresses to the actual implementation date. It will probably involve such things as securing or developing materials and equipment, training personnel, and developing management techniques to monitor and control the program operation.

The *third* step of any implementation process is the actual doing or operationalizing of the program. The person most responsible for this step is the program manager or director. It demands the skill and judgement of the manager to organize and coordinate strategies to meet the objectives, to effectively utilize resources to meet the objectives and to motivate and ensure maximum performance from program personnel. To assist the manager in this endeavor are a number of techniques that have been developed by management science. (See Techniques) These too must be built into the planning efforts before implementing. They include such controlling and monitoring techniques as PERT (Program Evaluation and Review Technique) done during the implementation planning, status reporting, performance appraisals, feedback, and evaluation. The manager can use these techniques to provide the necessary information on the progress of the program, to change plans, to anticipate problems and to maintain quality control.

The *fourth* and final step involves a decision to terminate or expand the program. This decision is obviously intertwined with program evaluation (See Handbook #6). If things are going badly and corrective action is ineffectual or impractical, the program may have to be terminated early. Program personnel must thus delay implementation or eliminate the program. If the program is judged ineffectual the same option may be chosen. Hopefully the opposite will prevail and plans are then focused on expanding and improving on a good approach.

How is Evaluation Used In Implementation?

Successful operationalization of a plan depends in large part on the manager's ability to monitor and control the progress of the implementation. The task is simplified by the development of the plan for implementation which delineates tasks, activities, time lines, and persons responsible. But evaluation and feedback throughout the process are necessary to the manager. They provide the manager with the information needed to maintain order and control the program. It should be noted that control in the managerial sense means management by self-control

and not management by domination. Control does not necessarily imply strict adherence to the plan but rather flexible decision making during the implementation of the plan. The "closer the better" is not the guiding rule in effective implementation. Effective and efficient utilization of resources and planning lead to successful implementation.

How does the manager get the information needed through formative evaluation of the implementation to control the process? These evaluation efforts can be viewed in terms of three criteria or objectives: *program efforts*, or descriptive information about the type and quantity of program activities; *program effectiveness*, or the provision of information about achievement of outcomes; and *program efficiency*, which compares information about program effectiveness to program effort on an economic basis. Systematic information from all three of these sources is necessary for the manager to make decisions about continuing or changing current strategies.

These decisions about program implementation lead to real action that can directly affect children. Other non-curricular programs however can be addressed similarly. The operation and completion of this phase coincides with the next handbook *Evaluation in Education*. The next section of this handbook reviews several planning models dealing with implementation.

MODELS

This section provides a general description of four implementation models. The narrative descriptions of each model provide an overview, specific steps involved, and how they might be used. The purpose of this sections is not to make experts of readers but to familiarize them with the structure of the models.

Educational System Planning: This section describes a model that can be used by managers to plan and prepare for the implementation of a program. The model includes such steps as Mission Analysis, Function Analysis, and Task Analysis. It sets down all the "whats" necessary to reach an objective-not the "hows". It is the determining of what to do to reach an objective. Once the predefined objectives are set, the aim of management is to plan, organize, staff, give direction, and control implementation to reach the objective.

During the previous steps of the comprehensive planning process an alternative or program was decided upon for implementation. The objectives of the program or the requirements that the educational system must fulfill are known in this model as the "mission objective". From this point one can use systems analysis to determine system requirements and possible strategies and tools in different levels of detail to go from the general to the specifics of what must be done i.e., from the mission, to the function, to the task. For example if the alternative is to implement an individual reading program, one of the basic functions in implementing this program is to determine learner entry level. This can further be broken down into other functions such as "identify learners", "identify possible instruments for determining entry level", and "select instruments". These functions can be broken down further. For example, under "select instruments" one has to "select from among existing instruments", establish instrument package for determining entry level". The major purpose of this type of model is to put down in logical order all the *whats* that need to be accomplished to reach an objective or complete a program. By going in a logical order from the broad objective, the mission, to the specific objectives, the task, the chances of leaving out major tasks that need to be included for successful attainment of an objective or goal can be decreased.

What are the steps of the Model?

1. Mission Analysis: The mission analysis states the overall and measurable performance requirements for achieving program outcomes. Based on the mission

analysis a mission profile showing major milestones for solving the problem and meeting the program outcomes are spelled out.

2. Function analysis: This step identifies and defines *what* is to be done to get each of the milestones of the mission profile accomplished.

3. Task analysis: This step provides the last level of detail of a system analysis differing only in degree from the first two steps. At this level "units of performance" are identified.

4. Methods-means analysis: This step can be done in parallel with the other steps or as a last step. It involves the identification of possible methods and means (or strategies and tools) for achieving each of the performance requirements. It also identifies the advantages and disadvantages for each possible *what* that is to be done.

5. Select solution strategies from alternatives: It is at this point that you can begin the "how-to-get-it-done" part of the model. A cost-benefit approach can be used to help select the best and least expensive tools and strategies to be implemented.

6. Implement solution strategy: This is the point at which the products of planning are actually implemented. The task now is to develop a management and control subsystem to assure that tasks are performed, resources are available, and that data will be collected to determine whether the system is functioning as required.

To understand the process the following chart is useful: (Kaufman 1972)

General Questions	Systems Analysis
Where are we going and how do we know when we've arrived?	Determine mission objectives and performance requirements.
What are the things that will keep us from where we're going and how do we eliminate them?	Determine and reconcile constraints
What are the major milestones along the way to where we're going?	Determine mission profile

General Questions	Systems Analysis
What are the "things" that must be done to get to each milestone?	Perform function analysis
Of what specific tasks are the "things" composed?	Perform task analysis
What are the possible ways of getting the "things" done?	Perform methods-mean analysis

How Can You Use This Model?

This model can be used at various levels in an educational organization. It can also be used by school and non-school people who want some structure to guide their planning efforts. There is not sophisticated computer application required no matter what the name of the model may imply.

Where can you Get More Information?

The model is described in a book entitled *Educational System Planning* (1972) by Roger Kaufman. It is available from Prentice-Hall, Englewood Cliffs, New Jersey.

PLANS: (Providing Logical Agencies with New Strategies) the Worldwide Model (See figure 3) uses the same system analysis process for planning implementation and operationalizing a program that has been outlined above. The process in this model is analysis or the process of breaking down an existing whole into its constituent parts. It is assumed that the parts have a logical relationship to each other and the whole. A system as used in this model is defined as "the sum total of parts working independently and in interaction to meet previously specified objectives."

What are the Steps of the Model?

1.) Develop implementation plans

1.1 Mission analysis: all constituent parts of the problem must be identified and separated into logical relationships. It is important to identify only the WHATS that must be accomplished and not the HOW. (See figure 4)

1.2 Function Analysis: take one of the boxes from the mission analysis and do a complete analysis of it. (See figure 5) Function analysis is done at two levels, the second level being more detailed than the first level.

1.3 Construct plan document: delineate the activities, schedule events and determine resource requirements.

2.0 Obtain plan approval

3.0 Activate plan

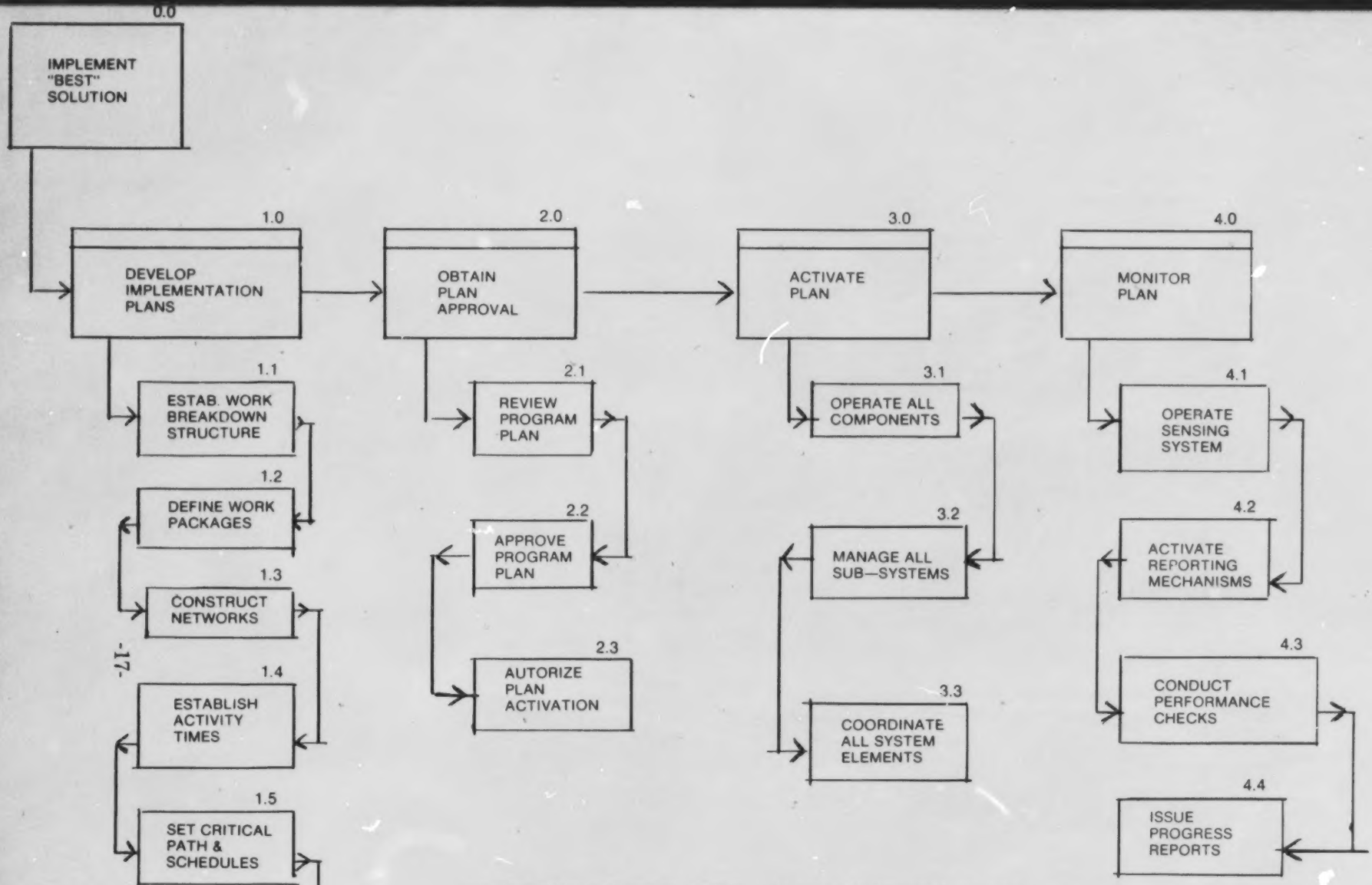
4.0 Monitor plan

How Can You Use This Model?

This model provides a great deal of specification of the "whats" of implementation. If all the substeps are addressed adequately all contingencies will have been covered. The model uses a flow charting approach (See Techniques) to show the relevant steps of the model. It will provide a good starting point in determining resources and time related to program implementation.

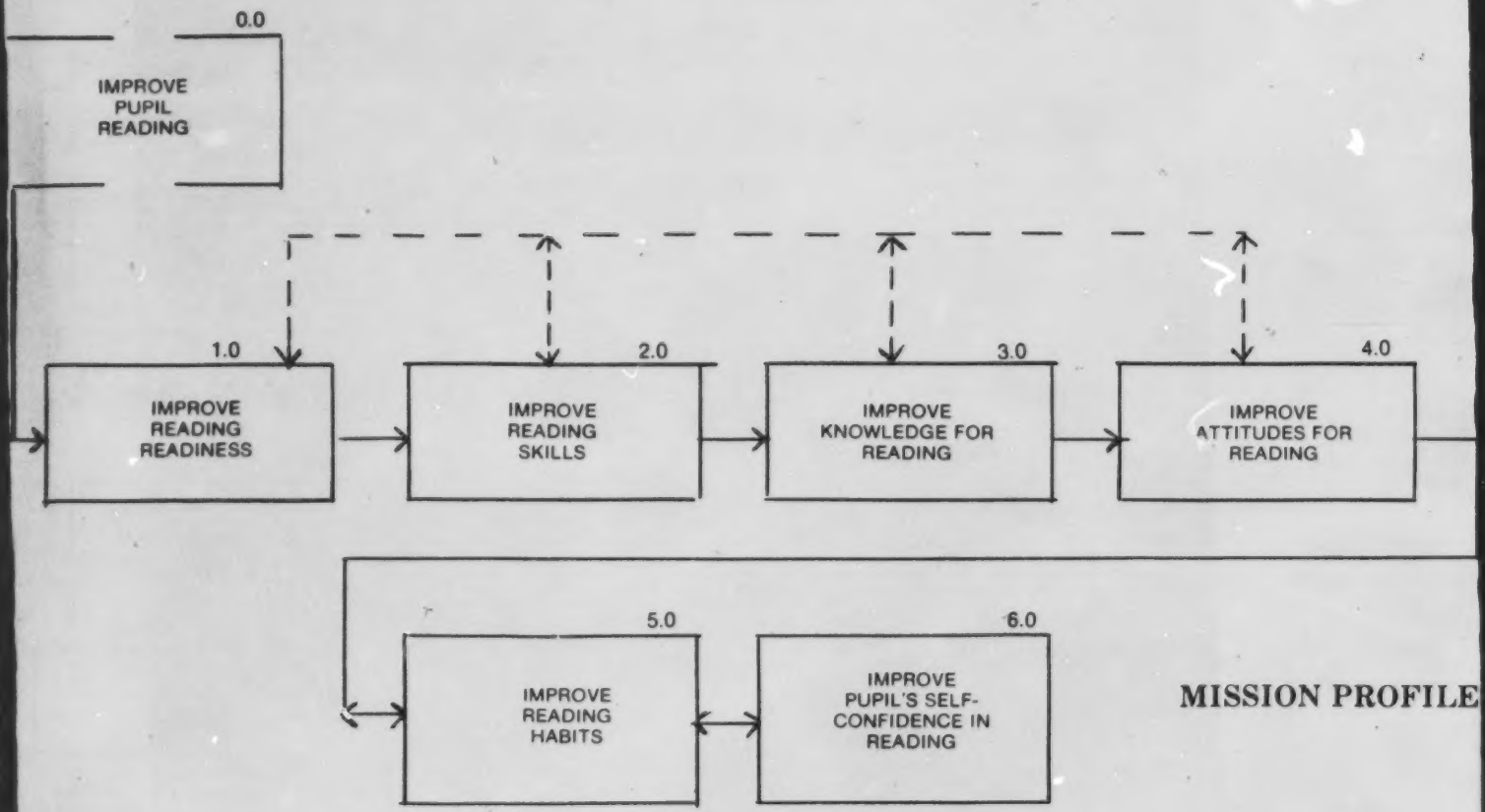
Where Can You Obtain More Information?

The PLANS model can be obtained from Worldwide Education and Research Institute, 2315 Stringham Avenue, Salt Lake City, Utah 84109.



GENERIC MODEL FOR IMPLEMENTATION

FIGURE 3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IMPROVE PUPIL READING
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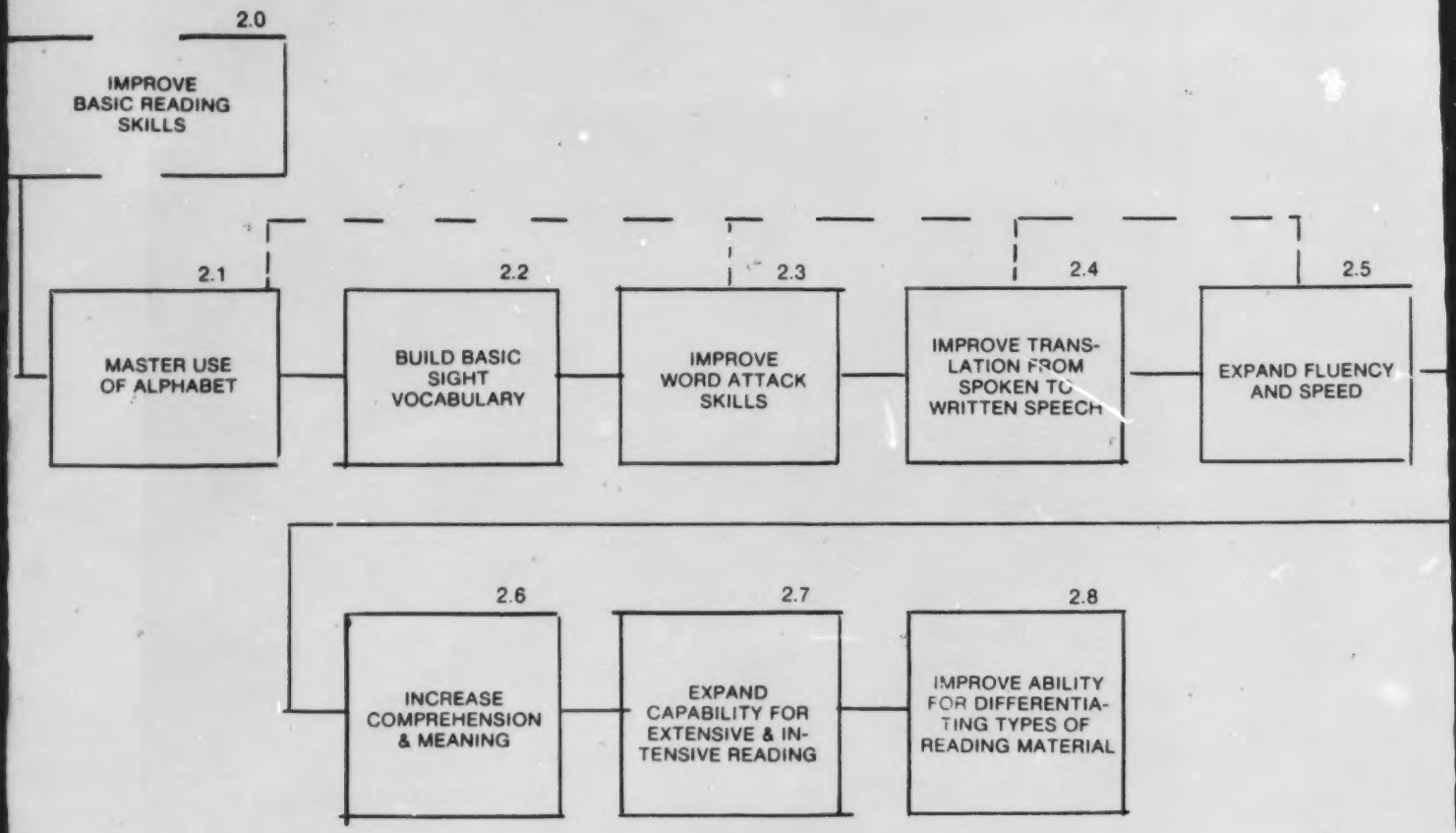
IMPROVE READING READINESS
2.0
IMPROVE READING SKILLS
3.0
IMPROVE KNOWLEDGE FOR READING
4.0
IMPROVE ATTITUDES FOR READING
5.0
IMPROVE READING HABITS
6.0
IMPROVE PUPIL'S SELF-CONFIDENCE IN READING
MISSION PROFILE

FIGURE 4



FUNCTION ANALYSIS

FIGURE 5

Management by Objectives: Management by Objectives has been thought of as a model for building teamwork. It is basically an attempt to direct individual motivation of all persons involved toward the achievement of major goals. An important factor in uderstanding the Management by Objectives (MBO) model is time strategy. Because MBO is an implementation model it involves careful strategy in terms of time and resources. A second important ingredient in the model is a bringing together of individual competencies. Basically we assume that everyone has something important to contribute, but MBO actually goes a step further.

According to this way of thinking, the MBO model suggests that individuals must be involved not only in working toward objectives, but also that individuals be involved in setting up or formulating the objectives.

There are four fundamental principles of MBO: (Mali 1972)

1. Coordinated teamwork with organizational clarity is more likely to occur when there is pursuit of a common objective.

2. The greater the focus on a time limit on achieving results, the greater the likelihood of success in achieving those results.

3. The greater the participation in setting up the work, the greater the motivation for achieving it.

4. Progress can only be measured in terms of what one is trying to make progress towards. In other words, if goals are lacking or unclear, you can't do a good job; work is purposeless.

MOB fosters a sense of belonging and attempts to motivate the program director and staff. In practice it demands a spelling out of activities, schedules and resources. It is a kind of self discipline because it is a continual examination and reexamination, first in coming up with objectives and later in monitoring, assessing, controlling, and measuring progress in accordance with predetermined objectives.

What are the steps of the model?

The steps of the model are described as follows:

Phase 1. Finding the Objective. The concept of managing by objectives begins with a deliberate and systematic identification of results needed by the organization for survival, growth, improvement, or problem solution. This identification starts with an examination of the organization as it is now constituted. All kinds of analytical or situational questions are raised: Where are we? How did we get here? What is our state of affairs? Why are we deficient? What are our opportunities? Trends, projections, and indicators are examined to note situational effects on the organization. Broad areas suggesting potentially usable objectives are identified, such as target groups, improved services, new facilities, lowered costs, material improvements, reduced absenteeism, work simplification, methods improvement, integrated approach possibilities, coordinated program efforts, productivity improvement, staff motivation, and student and parent satisfaction. The practitioner must give this first phase much time, analysis, and attention, since it is at this stage that drift, aimless tendencies, or incorrect direction are noted, stopped, and redirected.

Products of Phase 1: list of attractive and needed potential objectives. (may have been generated in previous steps of generic model)

Phase 2. Setting the objective. The broad areas of potentially usable targets identified in Phase 1 provide the basis for adopting and setting the objective. This setting process involves the program team and its resources in a form of participation until a formal statement of objectives emerges. This statement proposes that a commitment is to be made by an individual, a group, a department, or the entire organization. The formal statement is written, communicated, supported by top administration, interlocked with other groups, and the whole organization is accountable for its implementation. Setting the objectives is a formal process of relating the resources of the organization to the involvement of those expected to deliver the results. It is based on the principle that if you want to get maximum results from people, get them involved and make them accountable for these results.

Product of Phase 2: formally written statement of objectives.

Phase 3. Validating the objectives. The formal statement of objective developed in Phase 2 is subjected to a validation procedure. This procedure determines the confidence an individual, department, or school may have that an objective can be reached within its stated time. Risks, assumptions, and changing requirements are checked and analyzed to see where faults or failures can occur with implementation. The validation procedures stimulates in a "dry run" effects of errors or great difficulties that may emerge. It builds within the objectives, contingencies to avoid potential errors. The validation procedure translates the statement of objective to a statement of commitment. This commitment is binding since a pledge or promise is made to deliver a given set of results. The validation procedures assures that resources, facilities, materials, methods, people, and administration are ready and willing to reach a desired goal. Such a procedure raises or lowers the confidence, raises or lowers the risk, raises or lowers the probability that the venture will or will not take place. It is at this point in the overall managing by objectives process that many objectives are discarded as unattainable or unworthy.

Product of Phase 3: validated statement of commitment.

Phase 4. Implementing the objective. Once a validated statement of commitment has been made as a result of Phase 3, a motivational system is created to implement the completion of the commitment. Setting the objective in Phase 2 requires motivators to be built into the objective as an inherent ingredient. Phase 4 develops plans and activities to begin and carry out the action needed for fulfilling the commitment. There must be a connection between these two phases. Phase 2 defines the target, Phase 4 is the implementation strategy for reaching the target. This will require of the practitioner a more deliberate approach in motivating, coaching, and persuading, which can be described as "planned motivation."

Product of Phase 4: implementation of activities to reach objectives.

Phase 5. Controlling and reporting status of objective. Phase 4 is based on the principle, stated earlier, that progress can only be measured in terms of what one is trying to make progress toward. This phase sets up all activities under a schedule in order to measure and report the current status as well as progress toward completing the objective. The controlling and reporting process detects descrepancies of actual progress from expected progress and reports these descrepancies for corrective action. The concepts of feedback (measurement of past progress) and feed forward (measurement of expected future progress) give

the project team an idea of their present position in relation to where they are going.

Product of Phase 5: status reporting schedule toward established targets.

How Can This Model be Used?

Ultimately no amount of organization scheduling and monitoring is as powerful, essential or as difficult to achieve as the ability to instill the employee's desire to work toward the organization's goals.

The MBO Model clearly directs itself to this critical problem of motivation (See Phase 4 explanation of MBO). While many factors affect an individual's desire to get involved in his/her work, in the use of motivation techniques we are assuming that it is the project director's responsibility to inspire, encourage and persuade others to act.

According to Mali, the higher the level in an organiztion an individual is, the higher his/her self-motivation. Correspondingly, the lower the individual is in the hierarchy, the more it is left to his/her supervisor to plan motivation for him/her.

People are motivated by human needs (see figure 6). If the project director is to be at all successful he/she must begin to fulfill these human needs within the goals of the organization. An example of planned motivational concepts if given by Mali in his book on MBO.

HUMAN NEEDS DRIVE HUMAN BEHAVIOR

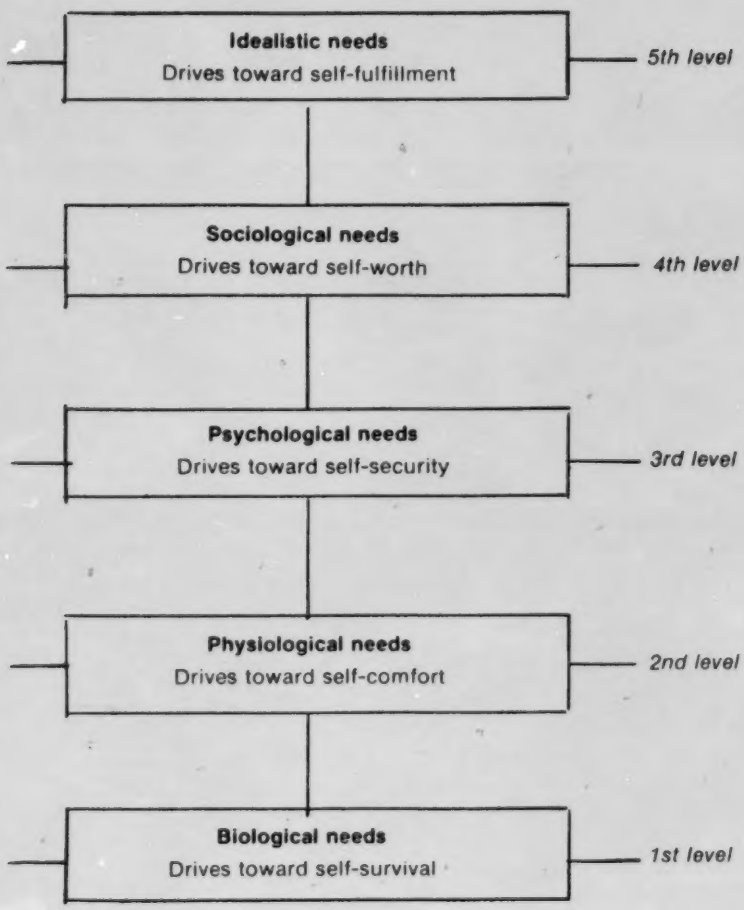


FIGURE 6

The more alienated a person feels from his/her work the less likely he/she will be motivated to achieve. Therefore several specific techniques have been developed to make jobs more "human". You can do this by either eliminating the negative parts of the job or adding positive reinforcement. Of course one of the best motivators may be money, but since this generally is not cost effective, other techniques are used.

Job enrichment is the restructuring of jobs to include projects and tasks which the workers will find personally rewarding.

Job enlargement is the restructuring of jobs to make them more varied and less boring.

Job standardization is the restructuring of the job by reducing the number of tasks to perform.

Job simplification restructures the job to eliminate tasks which the worker finds personally annoying or difficult.

These are only a few innovating techniques, but planned motivation is a fairly new invention. It would be helpful to keep up-to-date on changes and discoveries in this new science of humanizing the workplace and using this mode.

Where Can You Find More Information?

The model is contained in *Managing by Objectives* by Paul Mali, 1972. It is available from John Wiley and Sons, Inc., New York.

Educational Project Management Instructional System: The Basic Principles and techniques for the Project Management model consist of twelve self-instructional, individualized and audio-visually presented lessons, management instructions and evaluation instruments. Each lesson in the module contains an introduction, the lesson presentation, exercises, exercise solutions, management instructions, additional examples, reading references and evaluation instruments. The lessons are grouped into four phases according to the life span of the project. These phases constitute the model. Description of the content of each phase follows in abstract form.

Project Planning Phase

1. Project Definition

Project definition is the activity concerned with describing a project. This activity involves specifying a project boundary and identifying those features of an educational problem area of concern which are to be dealt with by the project. The description includes all the statements of objectives which are intrinsic to the activity being developed and explains the broad to specific nature of the various statements.

2. Developing a Work Flow

The concept of work flow is defined and its relationship to the overall project planning phase established. Basic principles of construction and commonly used symbols are represented. Emphasis is given to the use of event-oriented and activity-oriented network diagrams or charts as a means of showing the sequence and logical order in which project tasks identified in work breakdown structure or project definition step must be accomplished. The importance of the graphic representation as a logical tool, a communication device, and a means of project control are included.

3. Time Estimation

Time estimation is an attempt to determine the length of time needed by a skilled person to accomplish the task assuming availability of equipment and resources. The time estimation is the amount of time it takes to complete the tasks, especially the longest time path of the work flow, called the critical path. Time estimation utilizes units of time (e.g., weeks, days, etc.) and includes the most likely, pessimistic, and optimistic times needed to complete the project.

4. Resource Estimation and Scheduling

Resource estimation is the process of determining the various types or categories of resources needed to accomplish the various tasks or activities in the project. Resources are generally of four types — personnel, equipment and materials, services, and travel. Effective project management requires that the resources be allocated in such a manner to provide for a smooth flow of work. The use of modified bar charts provides a convenient way of not only determining resource needs for a particular task but also provides a means for efficient allocation. The process of project scheduling is highly related to the careful determination of resource needs and their proper allocation among the tasks during the course of the project.

5. Cost Estimates and Budgets

Cost estimation is the determination of the amount of money needed for a work unit and for the total project. The budget is the plan for expending project resources. Budgeting involves the determination of both direct and indirect costs. Typical budget categories are personnel salaries, wages and benefits; equipment, materials and supplies; travel, contracted services, and indirect costs. The resource commonality table or "shopping list" is the basic document used in estimating costs and budgeting.

Project Preparation Phase

6. Project Start-Up

Project start-up focuses upon the activities involved in preparing to put a project into operation. A project start-up plan should be developed. It should cover proposal and contract review, if appropriate, project manager appointment, personnel recruitment, equipment and material acquisition, space facilities acquisition, and project handbook development. Careful planning and preparation at this stage can present many problems and delays in project operations.

7. Project Information System

Developing a project information system is an early activity in managing a project. This information system includes a project data base, organizational charts and documents, and a procedures handbook. Work sheets of schedule, cost, and performance are inputs to the data base as well as information from the proposal plan document and the negotiated contract. Task assignments, responsibility appointments, and updated progress of work are inputs to the information system; reports to other organizations are outputs of the information system.

Project Operational Control Phase

8. Project Operations — Monitoring and Control

Problem identification through management reports is the first step in the three-step, problem-solving process called control. Problem identification is dependent upon a reporting system which provides information on the past, present, and projected status of the project work effort. Deviations between the planned situation and the actual situation represent management problems.

Deviations are discovered by making time, cost, and performance measurements at specified points in the life of a project.

9. Problem-Solving Through Management Action

The solution of a problem which occurs during the operation of a project involves the determination of the cause of the problem, the generation of alternative solutions, and the selection of a "best" solution. The selection of a "best" solution is facilitated by the analysis of each alternative on the basis of project "needs" and "likes". The analysis of an alternative involves a go/no go evaluation for each "need" and the assignment of a weight for each "like."

10. Implementing Changes in Project Operation

After selecting action to be taken to solve a problem, it is necessary to implement it. Such action must plan for consequences, and include controls, reporting procedures, and detailed staff instructions. Information must be provided to management about the changes made. The decision must be monitored to be sure it is working smoothly.

Project Termination Phase

11. Project Termination

When nearing the end of a project the project manager initiates the activities of closing out the project. A plan for these termination activities is required and includes the project final report, the project history report, disposition of facilities, equipment and supplies, location and reassignment of personnel, sorting and disposition of project records, and final financial accounting.

How Can This Model be Used?

This model can be used at the local level for large and small scale projects. It could even be used as a guide for implementing the entire generic model. The alert reader will have already realized that the steps of the generic model are used within each phase of the model as well as providing overall direction.

Where Can You Find More Information?

The *Educational Project Management Instructional System* by Cummings and Cook can be obtained from Research for Better Schools, 1700 Market Street, Philadelphia, Pa.

TECHNIQUES

Clarifying the Picture

Implementation techniques are often so logical and simplistic, there is a temptation to voerlook their importance. But such techniques serve as vital tools which link theory to real life. On one hand, is the planning model and, on the other hand, the daily operations of an educational organization comprised of staff and resources, but limited by factors of time, uncertainty, money and external interferences.

For individuals with administrative responsibilities or heavy demands on time, simple planning/scheduling devices such as calendars, appointment books, or a string on a finger, suffice as very basic and essential techniques. They provide individuals with a time management schedule on a day-to-day or short term basis. They are particularly appropriate for activities requiring limited preparation and involving a limited number of persons.

However, many weaknesses and *limitations* are inherent in these systems.

1. They primarily serve as a basis for conceptualizing time, often only reflecting deadlines, submission dates, hold dates, or attendance dates.

2. They are applicable only to limited, short-term activities.

3. They do not consider preparation activities and time allocations, i.e., three days to prepare report, one to type, and two days to reproduce in quantity.

4. Moreover, they do not related individual tasks, assignments, or interdependencies, i.e., administrator to write, secretary to type, clerk to collate, messenger to mail.

In essence, these techniques are basically representative of a "semi-formal approach to program management." They are acceptable as management techniques only if the program requires limited time demands, and is directly related to objectives selection. It is a systematic process of activity or task analysis, referred to as the work breakdown structure. Often this is referred to as the first steps in a plan development since it reflects activities or events. It must be emphasized at this point that planning/scheduling techniques are only as valid as the activity and task analysis or work breakdown structure.

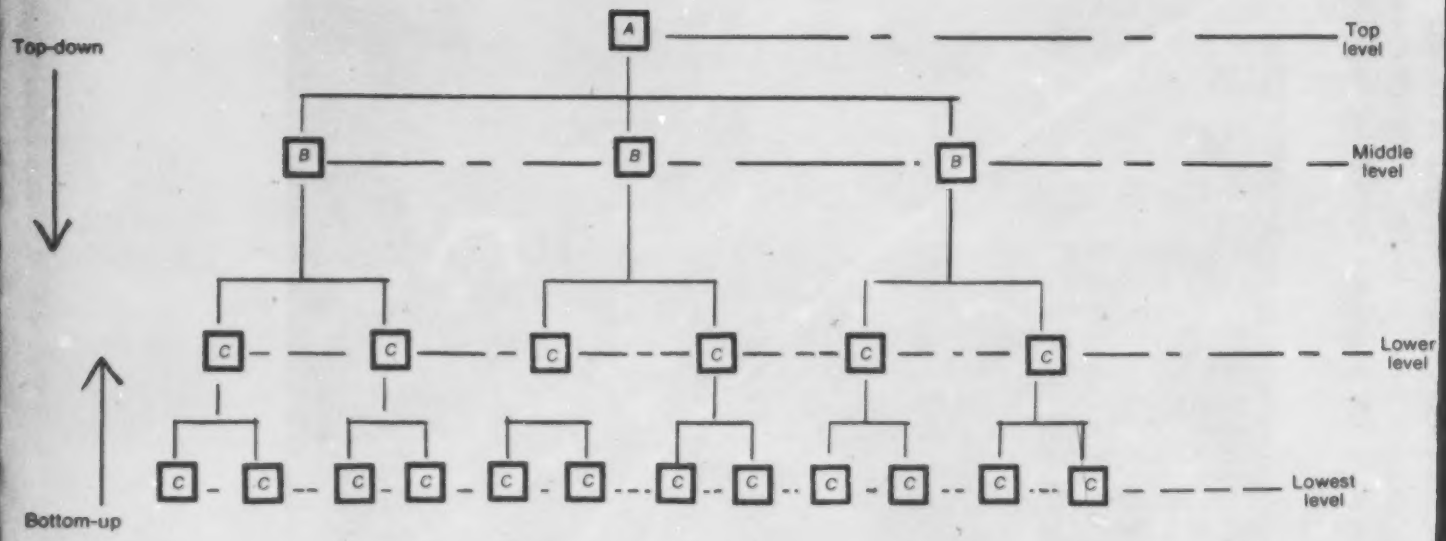
* Much of the material is adapted from EIC/South's publication *Program Planning Techniques.*

Essentially a work breakdown structure is the process of subdividing or classifying the project into component parts through a project to task approach. It is basically the categorization of patterns of activity, and the identification of activity relationships.

The level of refinement of a task analysis is dependent upon the project requirement or planners' desires. Individual components, activities and work packages may be analyzed to varying degrees of refinement. A work breakdown structure in itself reflects the (a) needs of the planner, (b) needs of the operator, and (c) the degree of desired control.

It is advisable when conducting a work analysis to involve the basic program staff through an intra-staff communications process for specific assignments in the work analysis. (In most programs or projects people at various levels have expertise and insight into a specific work analysis).

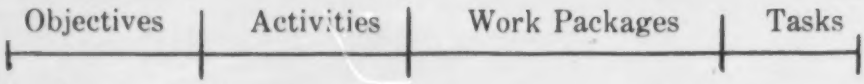
Work breakdown structures are designed in either two formats — vertical or horizontal. The vertical work breakdown structure resembles an organizational chart with "top down" design. (See figure 7) It provides a highly visual representation of the work analysis in a classification schema. However, extremely complex programs become very difficult to display in this format.



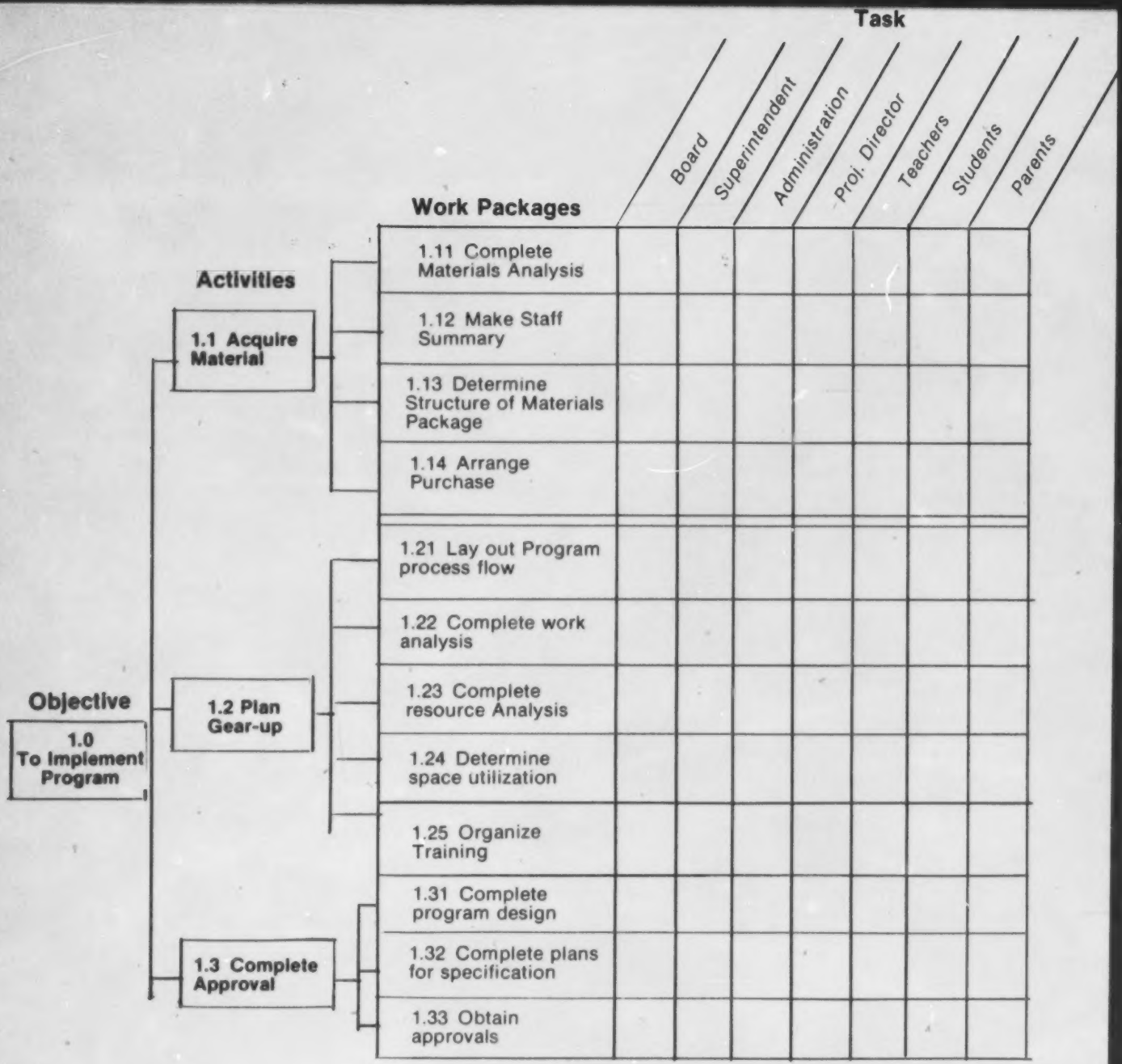
Top-down, bottom-up Work Breakdown Structure

FIGURE 7

Horizontal work breakdown structures are left to right in design resembling a notated book format. Each column moving to the right represents greater refinement of the previous column. The standing format for this design usually incorporates:



In developing work breakdown structures, sequencing activities are not a required consideration. However, the horizontal design, intentionally or unintentionally, usually denotes activity sequencing more so than the vertical classification schema.



Horizontal Work Breakdown Structure

FIGURE 8

Chart Techniques:

Chart planning and scheduling represent the most easily and readily developed techniques. However, this does not deter from their usefulness or acceptability as a technique. Reiterating again that, the technique selected is dependent upon the level of control necessary or needed.

Chart techniques are basically a matrix or grid approach to planning/scheduling. They are primarily two dimensional in that they normally denote time and task or activity. They suffice as planning/scheduling and control techniques through depiction of the completed task/event in relation to the pre-projected time. The two most common forms of chart scheduling are GANTT bar charts and Milestone Charts.

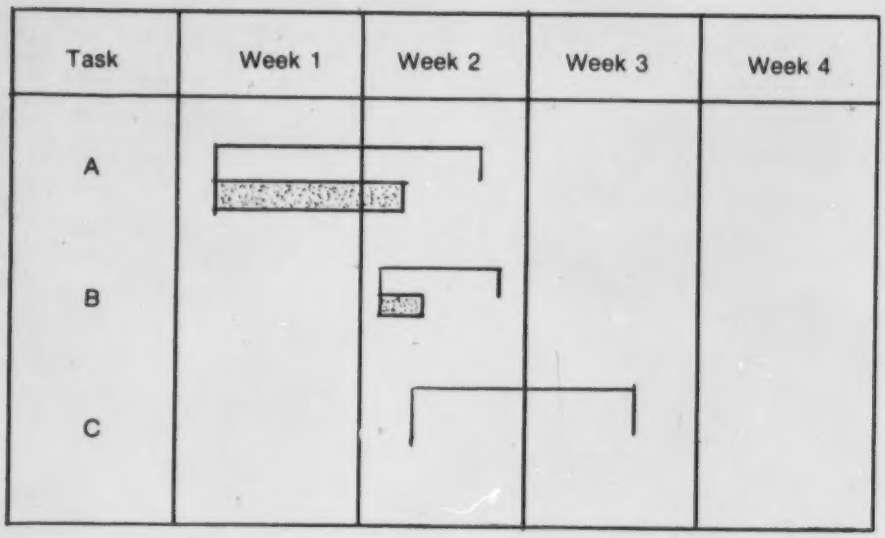
GANTT:

The GANTT chart, developed in 1917 by Henry Gantt, a consultant to the Franklin Armory, is an activity oriented system. It represents a simplistic disciplined approach to the planning/scheduling.

In its simplest form, the GANTT lists activities determined from the work breakdown structure vertically on graph with its allocated time indicated horizontally.

The program schedule status is denoted by hollow bars. Hollow bars serve as indicators of incomplete activities while solid bars represent completed activities.

One of the significant aspects of the GANTT chart is that the alterations are easily incorporated to meet specific project needs. Based on the horizontal breakdown structure activities, work packages and tasks can be listed and differentiated through the use of symbols. GANTT charts are in essence a technique for indicating activities and monitoring activity completion (See figure 9).



Legend:

Task Start

Task End

Work completed to date

Basic Structure of Gantt Chart

FIGURE 9

Milestone:

Milestone Charts employ the same layout format as GANTT Charts. The basic distinction between the two is that while GANTTs are activity oriented, Milestones are event oriented. Milestones denote a visualization of the sequence of significant events through time, frequently inidicating the initial and terminal events.

They, too, can be altered through the use of symbols. Administrative milestone events can be depicted by squares, supervision milestones by triangles and operational milestones by circles (See figure 10). Another alternative to the use of symbols is color red to depict administrative milestones, blue for supervision, and yellow for operations. A final alternative and one that is frequently utilized, is the separation and portrayal of milestone events for each hierarchial level on separate charts.

PROJECT STATUS REPORT 3/28/77

EDUCATIONAL AUDIT PROJECT

Event Number	Event	1977												1978
		1-1	2-1	3-1	4-1	5-1	6-1	7-1	8-1	9-1	10-1	11-1	12-1	1-1
002	Project Approved			■	□									
004	Begin Guidelines			■	□									
040	Begin Project Selection			■				□						
010	Begin Workshop Plans			■										
019	Begin Workshop				■									
000	Begin Dissemination Plans			■										
001	Guidelines Completed							■	□					
030	Begin Manual Preparation							■			□			
003	Model Networks Developed								■□					
036	Manual Completed											■		
010	Project Applications Eval'd													
027	Dissem. Lectures Completed													
085	Final Report Completed													

FIGURE 10

PROJECT INTERNAL MILESTONE EVENT REPORT.

Another very unique aspect of Milestones, GANTTs and other charts is their expandability. Columns indicating manpower and fund allocations and expenditures can be related to either or both function and time; thereby affording a process of monitoring the project status in terms of completion and expenditures. Chart scheduling techniques: 1) are primarily designed to control functions through time, 2) can monitor programs in an on-going process, 3) are appropriate for limited short-range or repetitive programs, 4) are applicable to all organizational levels, 5) can demonstrate some measure of program lag or imbalance, and 6) are applicable as monitoring instruments to other techniques.

However, in regard to many programs, they have definite limitations in that they:

1. Are based on time estimates that:

   a. require prior function knowledge
   b. require previous similar experience

2. Inadequately depict dependencies, interdependencies, and inter-relationships

3. Are significantly more concerned with administrative levels than operational levels.

4. Are not appropriate for complex programs.

Network Based Techniques: Considering the aformentioned limitations of chart techniques, as well as the fact that educational management has become as complex and diversified as the children it serves, it is readily understandable why administrators have been looking for better methods of fulfilling their responsibilities. In this light, network-based techniques have received a great deal

of attention in educational literature, for most authorities presently consider network-based techniques as a most promising process for managing many educational endeavors.

Networks essentially provide a schematic process for determining the incremental activities that will enable accomplishment of pre-stated objectives. Administrators through a pre-determined approach, will known "what will occur" and "when it will occur". Decision making can thus be considered in terms of necessary project resources. Furthermore, the board of education will have the assurance that programs will maintain continuity regardless of the manager.

In this context the basic characteristic of Precedence Diagraming Method, Program Evaluation and Review Technique, Critical Path Method and Flow Diagraming will be discussed. At present, there exist numerous acronyms for planning/scheduling techniques. However, most incorporate the basic concepts of these four aforementioned techniques. Consequently, many educators have adapted or modified these techniques to meet their own needs.

All network-based techniques employ a pattern of intersecting arcs (lines) and nodes (circles, blocks, other). Lines are used to denote process sequence, interdependencies and constraints or relationships. Solid lines indicate a required dependence in sequential chronology, whereas dotted lines indicate constraints or interrelationships that do not require assignment. Nodes are used to symbolize an instance in time. Nodes indicate both the completion and beginning of what it represents. Simply stated, the line represents the process while the node represents the initial/final action.

Networks also usually denote time. Letters and subset abbreviations are used for this purpose. The most commonly used is Te indicated the expected completion time.

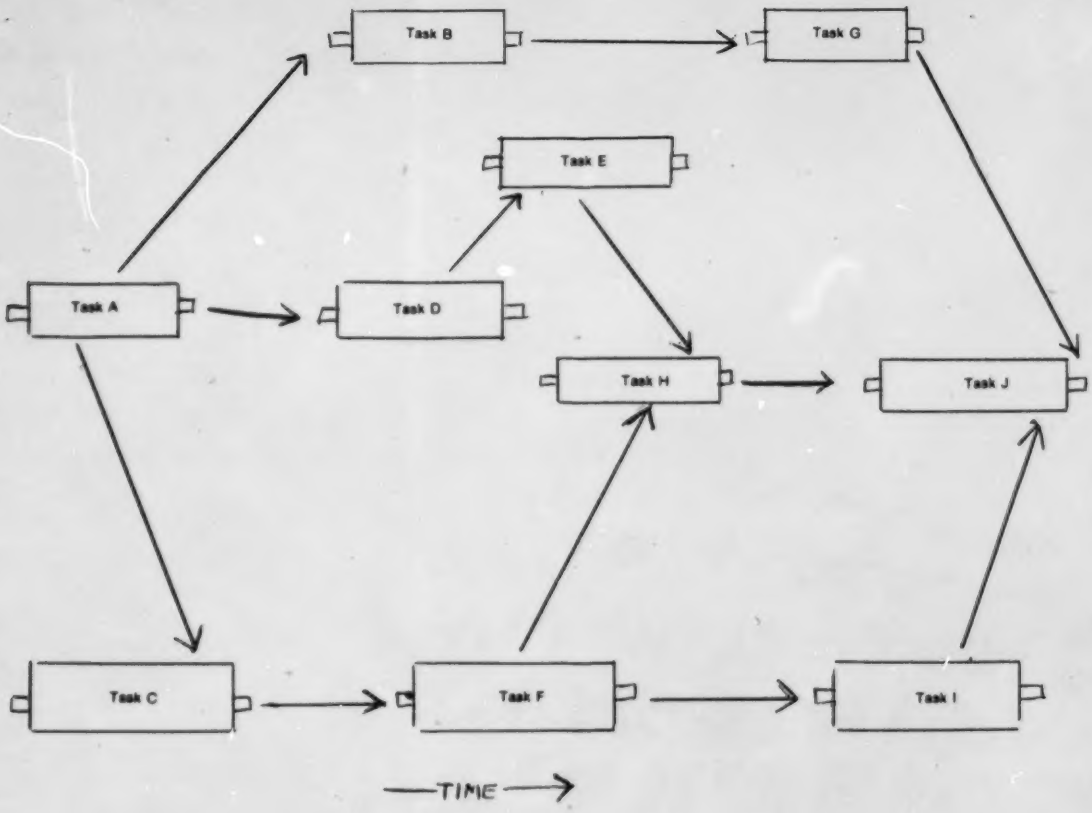
Basic differences in network scheduling techniques relate to their ability to schematically represent three types of programs. That is, programs that are deterministic in nature (certainty), those programs that are probabilistic (uncertainty), and those that require continuous decision alternatives.

Other primary distinctions between scheduling techniques include:

(a) activity-oriented format or event-oriented format
(b) use of symbolism to denote activities and events

Before selection of the appropriate network-based technique these issues should be thoroughly considered. Success can only be achieved through proper program implementation techniques.

Precedence Diagraming Method (PDM): PDM is an activity-oriented network. Utilization of symbols differ in the arc, represent dependency and sequece only, and are void of time (See figure 11). Nodes, in this case blocks, are used to denote activities. The absence of event and dummy paths simplifies the network. Total time for each activity is indicated below the block. The smaller attached blocks on each side of the main block indicate initiation and termination activities. In this case, time is considered as the beginning and ending time. The earliest starting (E.S.) and Earliest Finish (F.S.) time can then be calculated. Late start and late finish time can also be incorporated as well as time float using the formula TF =(LF-ES) -D. TF =Time Float, LF = Late Finish, ES = Early Start, D = Duration Time. The basic disadvantages of P.D.M. is that it does not foster Milestone reporting (no events indicated) and does not interface activities..



PRECEDENCE DIAGRAMMING METHOD

Figure 11

PERT: (Program Evaluation and Review Technique) The process introduced in 1958 cooperatively by the Navy (Special Projects Office), Lockheed (Missile and Space Co.)and the consulting firm of Booze, Allen and Hamilton, was utilized for the Polaris Missile Program. In other words PERT was first introduced in a research and development context. During the mid-sixties, Desmond A. Cook, through a U.S.O.E. grant, introduced PERT to the educational community.

The graphic schematic design of PERT is similar to CPM (See next section). However, it differs from CPM in two basic areas. First, PERT is an activity-oriented network rather than an event-oriented network. Program activities are indicated on the arc, with broken arcs used to identify dummy activities (no time or assignment). Secondly PERT requires three time calculations indicating optimistic time, pessimistic time and most likely time. Expected time (T_E) is then calculated using the formula T_E=optimal time + pessimistic time. Through the benefit of these three time calculations, PERT provides educational management with a planning process for the many projects that are probabilistic in nature.

What is the basic language of PERT/CPM?

There are four basic concepts used in PERT/CPM

1. The *network* is the sequential flow of all tasks necessary to accomplish the objectives of a project or operation. In graphical form the network flows left to right and always ends with the final objective. The network is not always readily apparent so ultimately it's a matter of consensus as to what it should look like.

2. An *activity* is a unit of time and work effort needed to accomplish an objective. Activities, then, use up time and resources, but can be anything from "tallying a survey" to "waiting for a response." In developing a network diagram it is important to recognize the sequence of activities, and to get a good estimate of the time involved in any activity.

3. *Events* are points of accomplishment. Events mark the beginning or end of an activity or group of activities, but events don't actually take up time or effort. *Milestone events* are major events. Event labels might be "start questionnaire mailing" or "begin analysis".

4. *Constraint* means that one activity cannot start until the preceding activity has been reached. Activity A is said to be constraint upon the activity which follows it (See figure 12). The Recognition of constraints is the recognition that the teamwork and backup work is vital to the attainment of goals. There are occasions when a constraint exists between selected portions of a total project and should be considered. This type of constraint is called a "dummy." A dummy activity doesn't take time, but is necessary before going on to the next activity. An example might be depending on the report of another department or agency before you can proceed. (See figure 13).

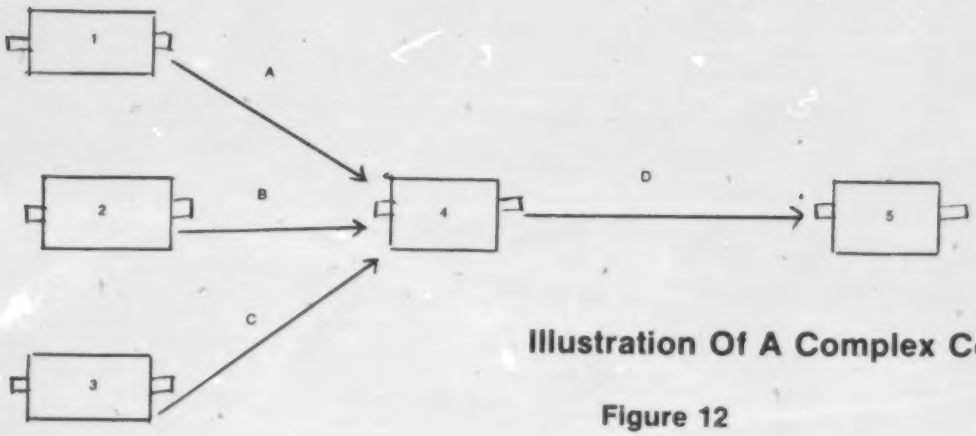


Illustration Of A Complex Constraint.

Figure 12

Critical Path: The Critical Path Method (CPM) was first introduced in 1957. The process, developed by Morgan Walker of DuPont (Construction Division) and J.E. Kelly, Jr., of Remington Rand (UNIVAC) was specifically designed for and applied to construction and engineering projects. The primary characteristics of this network system is its determination of the most crucial path or the most time consuming path throughout the planned sequence of the program. The system incorporates only one time standard, hence, it is used primarily with projects that are deterministic in nature. The basic format is event-oriented with each event indicated within the appropriate node.

CPM was primarily designed to be used with a computer management tool. However, it should be noted that adaptations and alterations can be employed. The use of three time estimates is now being utilized with CPM, thus making it applicable to a probilistic project. Additionally management is employing the CPM concept (critical path) in other network scheduling techniques.

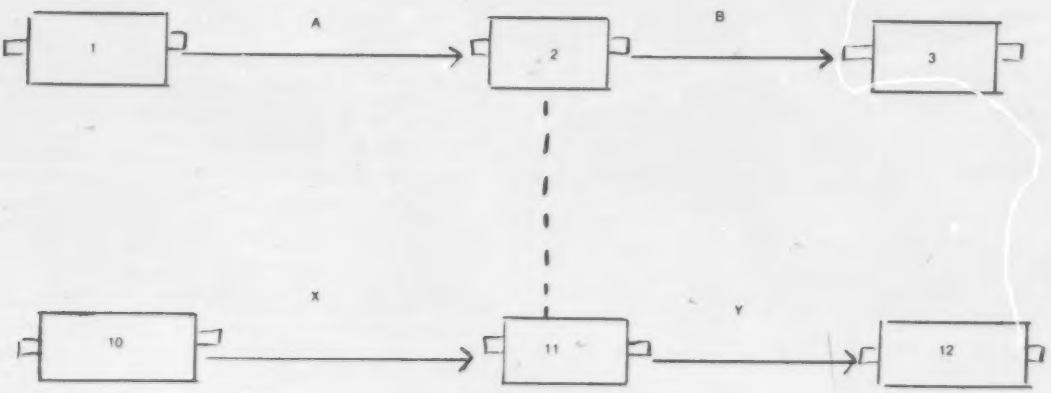
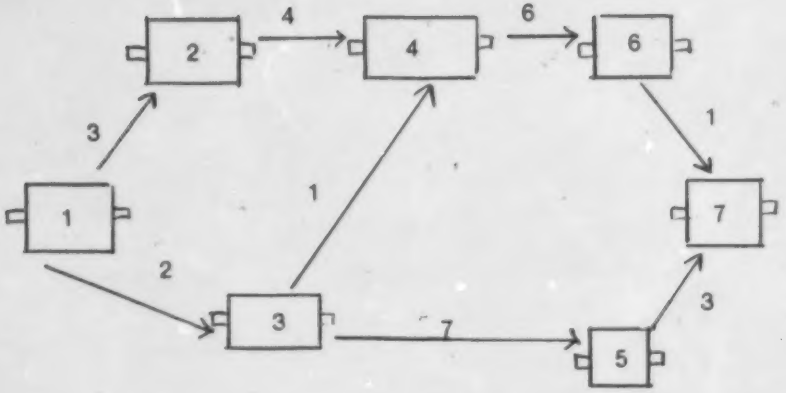
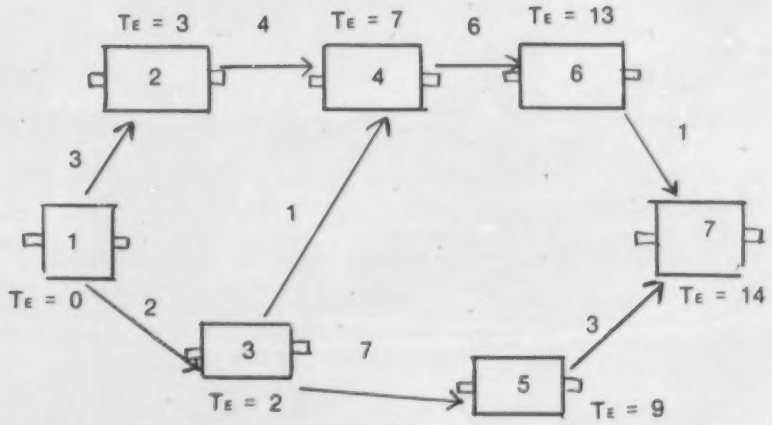


Figure 13

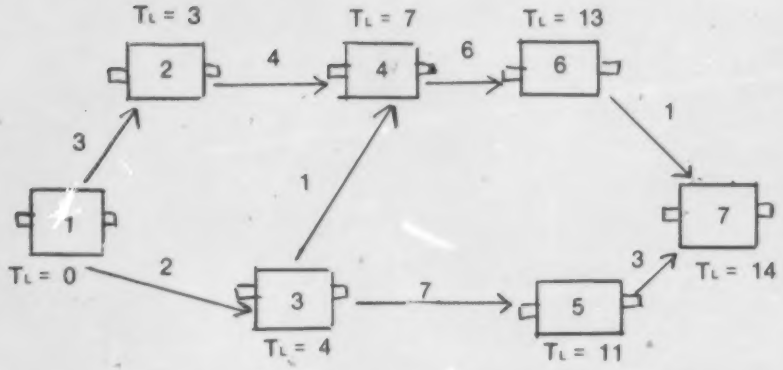
Illustration Of Dummy Activity To Show Constraint



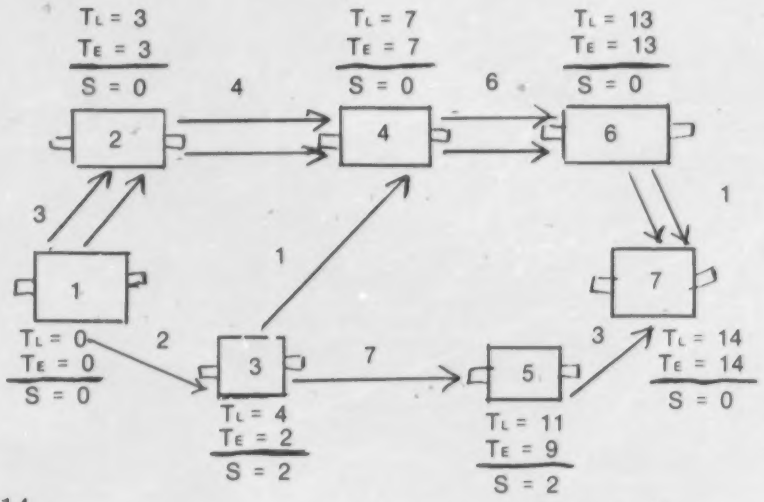
A—Network With Activity Time Estimates



B—Calculation Of Earliest Event Time (TE)



C—Calculation Of Latest Allowable Event Time (TL)



D—Calculation Of Critical Path And Slack

Figure 14

Calculation Of Event Times And Critical Path

Flow Charting: FLOW diagramming is of rather recent vintage in education. Prior to its introduction, and still today, FLOW diagraming is primarily associated with information systems and/or data processing with computers. In data processing specific symbols are used to denote functions for computerization.

Educators, however, have found this process extremely useful in that it employs decision branching as well as allowing for a re-cycling procedure for continuous decision making not possible in other techniques (See figures 1 and 3).

FLOW diagraming has the potential for incorporating many of the characteristics of the previously mentioned techniques. It is thus essential that educators begin to explore, adapt and alter this process to meet the present needs of educational management.

What other techniques are useful in implementation?

Because implementation is an on-going process of modification and monitoring, it is not sufficient to merely set forth a framework and schedule. Successful implementation demands evaluation, control and the development of a system of reinforcement and motivation, as well as organization.

Evaluation Techniques:

As we have seen in the Management by Objectives Model, certain evaluation techniques are used to aid implementation. Although several evaluation techniques willb e discussed here briefly, it is suggested that you refer to the *Evaluation Handbook* and other resources for a complete guide to the process of evaluating.

As you proceed in implementing a plan, you will undoubtedly find that it is necessary to rework some of your ideas and consequently necessary to evaluate alternatives. One method of evaluating alternatives is the meands-end analysis which can be used to find out why something is not working. Essentially, it is a breakdown of the specific *tasks* (which are means to the *objectives*) in terms of the feasibility or adequacy of each. The key here is logical classification.

A methods-means analysis is as logical in that it identifies all possible strategies and means for implementing each strategy and then lists the advantages and disadvantages of each insofar as its usefulness in achieving an objective. Both of these methods fit well into the logical PERT/CPM schematic design and so should be useful and easy to handle when needed during various implementation phases.

Another evaluative technique which is useful in allocation/reallocation of resources according to stated goal is cost benefit ranking or analysis. Because resources are limited, the cost-benefit of every program must be ranked.

A good example of this cost-benefit ranking process is that used by the Rio Linda Union School District in California (1969). John Van Gideh explains the procedure in his book "Using Systems Analysis to Implement Cost Effectiveness and Program Budgeting in Education."

First each goal is broken down into subgoals and objectives. objectives must be quantifiable or observable, definite, measurable, obtainable and in conformance with the organization's goals. You should be able to make a diagram of the goals as in Figure 16.

The action or implementation part of the process establishes relationships among the program, resources, budget and perhaps to other programs (see figure 16). The cost of the program requirement is established in terms of money and resources, and the expected output or result of each goal is measured and compared.

If you have a difficult time determining how to measure results, you may want to adopt some of these as guides.

1. a comparison of entry and exit behavior for each program
2. change in student characteristics
3. number of dropouts in each program
4. number of graduates
5. test results
6. variability of test results

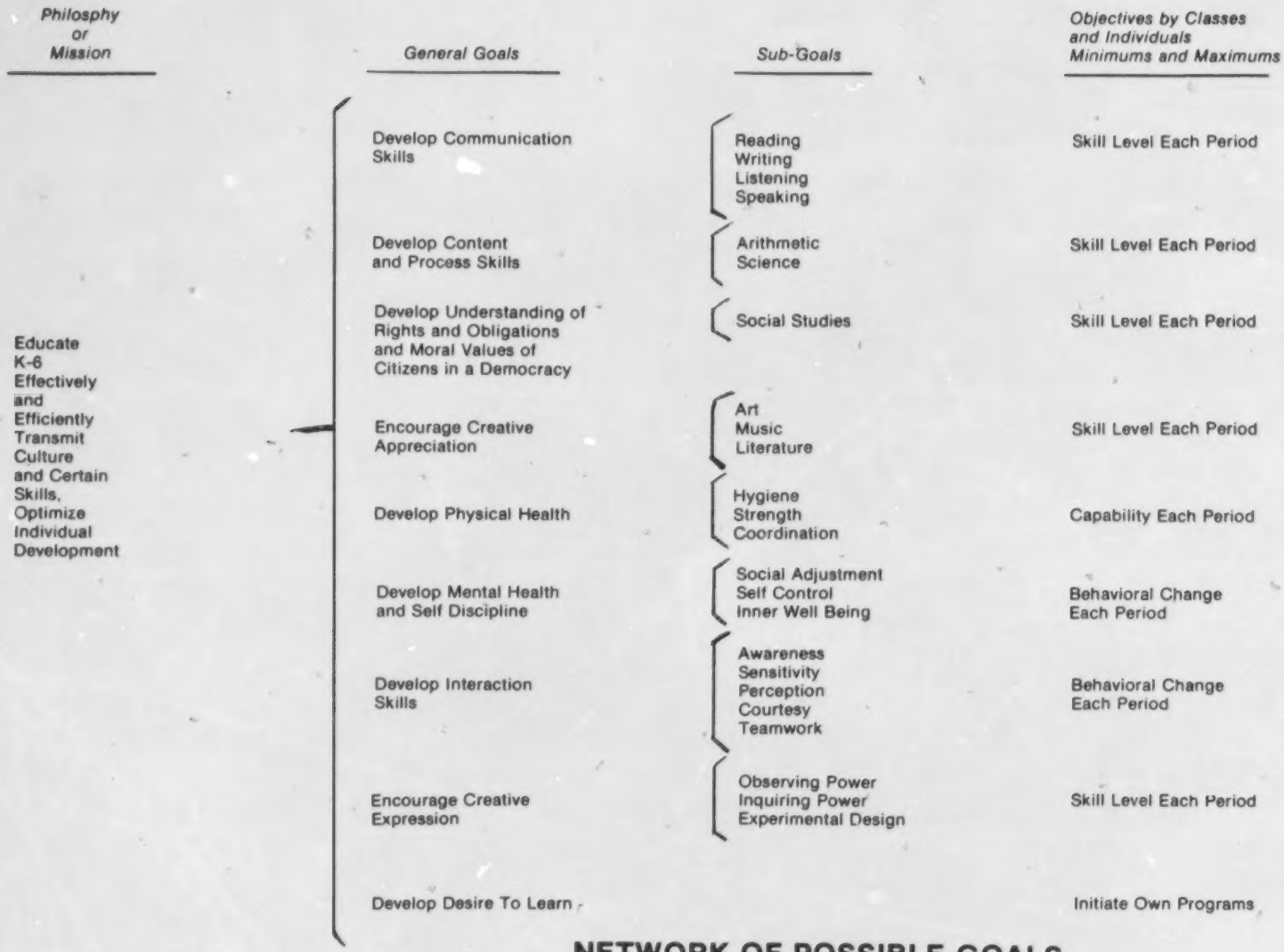


Figure 15

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NETWORK OF POSSIBLE GOALS & OBJECTIVES

Rio Linda Union School District

Much of the process is subjective. However clear delineations of expected outcomes in terms of the organization's stated goals allows for logical compromise and trade-offs.

Again, as in all phases of implementation, you have to allow for reevaluation and modification.

What are the tools for monitoring and controlling?

The priciple function of control is to make things happen. In order to effectuate control you have to:

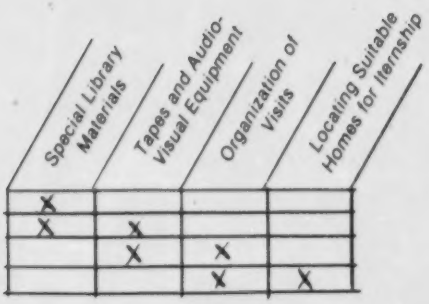
1. adopt a plan that established time, cost, performance standards
2. measure and report against those standards
3. correct deviations
4. rework the plan as needed

Certainly the PERT/CPM helps control. In addition you should learn to use regular reporting systems and staff meetings for monitoring progress. Some progress report forms are shown in figures 17 and 18.

Report writing and updating lets you know what has happened to date, what is currently going on, and what has yet to be done. Again, it is a tool to give you a better picture of the real life situation.

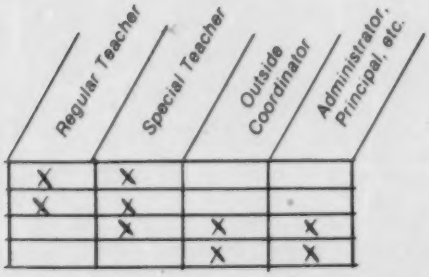
PROGRAMS vs. *SPECIAL NEEDS*

Program 1: Classroom Instruction
Program 2: Classroom and Laboratory
Program 3: Laboratory and Visits
Program 4: Internships



PROGRAMS vs. *PERSONNEL*

Program 1: Classroom Instruction
Program 2: Classroom and Laboratory
Program 3: Laboratory and Visits
Program 4: Internships



PROGRAMS vs. *BUDGETS*

Program 1: Classroom Instruction
Program 2: Classroom and Laboratory
Program 3: Laboratory and Visits
Program 4: Internships

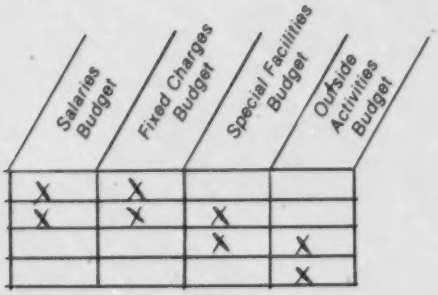


Figure 16

PROGRAM RELATIONSHIPS

PROGRAM EVALUATION PROJECT

FINAL REPORT: 1-15-78
STATUS REPORT DATE: 3-28-77

PROBLEM ANALYSIS	*IMPACT*	*MANAGE-MENT GOAL*	*POSSIBLE ALTERNATIVES*	*RECOMMENDED ACTIONS*	*MANAGEMENT DECISION*
PROBLEM: Total of 25.6 weeks required to submit final report. According to present plan, 12.7 weeks are required for art work planning and preparation	Delay of final report submitted by 11 weeks.	Turn final report in on time and within present budget.	1. Request time extension 2. Re-evaluate art work requirements 3. Re-evaluate estimated times for present art activities.	1. Reduce and eliminate selected art work 2. Simplify art work to be used	Simplify art work to be included

SAMPLE
PROBLEM ANALYSIS REPORT

Figure 17

PROJECT ED-SHOP: DISSEMINATION PLAN *Report Date: 3/28/77*

WORK PACKAGES		Plan To Date	Actual To Date	Over (Under)	Action
Number	*Item*				
100	Materials Preparation	$300	$400	100	▲
200	Travel	$2,000	$1,500	(500)	▲
300	Materials Mailing	$50	$50	-	△
400	Visual Preparation	$150	$175	25	▲
	TOTALS	$2,500	$2,125		

Action Code △ *—No Management Action* ▲ *—Needed Management Action*

Figure 18

PROJECT WORK PACKAGE COST REPORT

APPENDICES

APPENDIX A
PLANNING QUESTIONS....FIRST STEPS

		Completion Checklist
Question #1	Have you obtained all of the relevant documents about existing program efforts?	_____
Question #2	Has a coordinator been appointed for the program or project?	_____
Question #3	Have the administrators and the program coordinator analyzed the various planning documents?	_____
Question #4	Have administrative and staff assignments been made?	_____
Question #5	Have you prepared an action plan with the essential key events?	_____
Question #6	Has the board of education been through an orientation or awareness session?	_____
Question #7	Has the board of education passed a resolution to proceed with the project?	_____
Question #8	Have you (board of education - superintendent) decided on community involvement procedure or plan of action?	_____
Question #9	Have you developed a staff-time-cost analysis for the implementation process?	_____
Question #10	Have you considered the potential pitfalls and problems — and taken appropriate actions?	_____

SOME GENERAL PITFALLS IN PLANNING

(and some possible solutions)

1. **Lack of agreement on basic assumptions** — it is better to spend an excessive amount of time getting agreement on a direction than spend larger amounts of time later "spinning our wheels." Get fundamental assumptions down on paper and get consensus before moving on to more detailed objectives, alternatives and evaluation plans.

2. **Insufficient time** — a common rationalization where no planning capability exists. Any outlay of time devoted to effectuate planning is appropriate. The essence of planning built upon a consideration of constraints and resources, and time is a perspective in which any projected enterprise will be considered. Once committed to a level of effort, project management must see that deadlines are met or revised.

3. **Lack of participation** — participation on a completely all-inclusive basis may be desirable, but it is hardly necessary for unqualified success. Pick your spots; there are people whose participation is indispensable; there are others whose involvement is neither important nor required; others need only be kept informed. Schedule involvement within cost constraints. Use representative participation when possible.

4. **Lack of commitment** — commitment is the result of recognizing, (continuously some emotional level), the need to support a proposition. Provide for scheduled reminders to the people involved in the emotion (need) which precipitated their willingness to begin the effort; renew commitment.

5. **Lack of leadership** — a measure of your own commitment. If people are interested enough, they will seek out the loci of influence to help them move; if apathetic, they will as certainly find the people to blame for their own present disinterest. Shared leadership roles rotated among the most committed reduces the danger of rising priorities for other efforts.

6. **Visibility of effort** — refers to getting down on paper what has been produced. There is no way around this pitfall, you will be starting anew each time if you don't record where you've been, agreements reached and anticipated outcomes. Willingness to get draft copy of next steps down on paper and distributed will spur progress even if **YOU** have to do it!

7. **Personnel turnover** — planning capability must be built on an objective basis, i.e., with as little dependence on personalities involved and as much on functions and tasks as possible. Plan to have enough depth in personnel for any function so that the loss of any amount of personnel is not critical.

8. **Lack of "openness" in encounter** — a fact. Accept it and work from there. Taking this into account will help you find other, subtler means to engage people for whom human interaction is anathema. A conscious role of "group process observer" taken by one of your more perceptive and intuitive team members may help.

9. **Unilateral decision-making between meetings** — organize your group to invoke its own discipline. Assignment of precise responsibilities for management of group tasks will assure continuous feedback and help prevent unilateral actions of group members. Even under "emergency" pressures, a formal review of interim decisions after the fact is time well spent.

10. **Lack of belief in plans being implemented** — if enough of those involved in planning are seriously anxious about the extent to which some modifications of the plans being developed will be put into effect, documentary commitment from policy-makers is the next order of business.

Program Implementation
Pitfalls and Problems

Overview — Pitfalls and problems to be expected - Presentation of an in-depth analysis of the types and kinds of situations that will develop while a school district implements a new program.

Setting — Any undertaking of this type, with the adjustments that mark its beginnings, will experience a series of pitfalls and problems. Proper advance planning and a careful review of the subject will insure that the impact of these issues is minimal. Each potential pitfall and problem is presented as a fact, discussed in a realistic experiential setting. In other words, the pitfall or problem is contained within the framework of the implementation process and has happened before. Suggestions as to what not to do and some possible course of positive action will be presented.

Pitfalls and Problems — Some specific Pitfalls and Problems are presented for your consideration.

1. **Not Planning First**: Analysis of what is contained in the project plan and the specific implications to the School District Emphasis on understanding before proceeding — Planning is the most important step of all. Think before doing.

   - Understanding the Plan
   - Understanding the Process
   - Essential first steps

2. **Unclear Requirements**: Specific details as to what is really required of all involved personnel: Board members, superintendents, administrators, teachers, students, and citizens. Emphasis must be on what really needs to be done — fact vs. fiction.

- Actual requirements
- Specific details
- Role analysis
- Assignments
- Procedural plan

3. **Unstructured Communications**: Discussion of the human and public relations involved in an undertaking of this type. How do you balance the semi-compulsory nature of the project against the need for cooperation and support in the doing?

   - Identification of parties involved
   - Methods of communication
   - Lines of communication
   - Media involvement
   - Attitude

4. **Neglect of Community Involvement**: Consideration of the types and kinds of community involvement programs that are available. Emphasis on the need to individualize (customize) this process; it should not be an off the shelf purchase — adopt and adapt.

   - Review of the package programs
   - Community assumptions
   - Participant identification
   - Point of entry
   - Tailoring a program

5. **Undefined Staff Involvement**: Discussion of the many issues that may arise relative to the role of the teaching staff in the process. Recognition of such vital factors as district policy, teacher assignments or union contracts, etc.

   - District policies
   - Teacher contracts
   - Released time
   - Compensation

6. **Hastily Adopted Minimum Proficiency Levels:** (Indicators of success) Analysis of what this really means and what is actually expected. Review of current testing done by all school districts, relationship to the requirement.

   - Clarification review
   - Test results
   - Public impact
   - Student involvement

7. **Undetermined Costs:** Consideration of the various costs that may be incurred as a result of the program. Realistic assessment of what it will take in dollars to complete the program.

   - Staff compensation
   - In-kind costs
   - Material, equipment, supplies
   - Document production

APPENDIX B

Glossary of Project Management Terms

ACTION, ALTERNATIVE COURSE OF (ALTERNATIVE)

A proposed management action that may be selected for implementation to correct a deviation.

ACTION, CORRECTIVE —

Management action that can be implemented to correct the cause of a deviation.

ACTION, ADAPTIVE —

Management action that can be implemented to minimize the effect of a course of action if the cause cannot be corrected.

ADMINISTRATION —

A process involving the execution of management decisions within an organizational framework utilizing pre-established rules for decision-making.

ANALYSIS —

The process of breaking a total into its constituent parts and examining these parts to determine their nature, proportion, function, and interrelationships.

ANALYSIS, POTENTIAL PROBLEM —

The analysis of problems that may occur when a selected course of action is implemented. It involves identifying potential problems, determining their possible cause and the probability of its occurrence, determining the action to prevent the cause or to minimize its effect, and developing a procedure for handling those most serious problems if they occur.

AUTHORITY —

The right to act, to make decisions, or to command others.

BUDGET —

The expression in financial terms of management plans for funding a project over a specific time period.

DECISION, GO/NO GO —

The process utilized for accepting or requesting an alternative course of action for consideration if it satisfied and does not satisfy the "need" respectively.

DEVIATION —

A difference between a planned situation and an actual situation, a project management problem.

DIRECTING —

Primarily a process of motivating employees to accomplish their tasks. It requires the establishment of an environment conducive to accomplishing effort.

DIRECT COSTS —

Costs for those resources obtained especially for the activity or project task and necessary for its completion.

EVENT —

A definable point in time where some action or activity begins or ends. it is a recognizable instant in time which does not consume time or resources. Usually identified in network management systems by a circle.

EXCEPTION PRINCIPLE —

Control by identifying only *significant* deviations at specified points between "what is" and "what should be" or planned.

GANTT CHART OR TASK-EVENT CALENDAR —

A tool for planning work and relating activities to time or schedule. In a GANTT chart, the horizontal axis represents time and the vertical axis lists tasks or activities to be accomplished.

GEAR-UP PHASE —

The activities involved in the period after approval of the proposal and before the project operational activity phase. Consists of bringing together resources necessary to start the project operational phase, and identifying and establishing policy and procedures, and creating the project information system.

INDIRECT COSTS —

Costs accounted to a project which are often pro-rated since they cannot be adequately identified with a costing unit. Examples are heat, electricity, and other general facilities which are shared with the organization in which the project is housed.

LEAD TIME —

The time between the procurement or order of a resource and its need or use in the accomplishment of an activity.

"LIKES" —

those ends or decision-making objectives that are desirable features that alternative courses of action may satisfy to some degree. They are not absolutely necessary and can be ranked or weighed to establish their desirability.

MANAGEMENT —

The method of attaining organizational goals by 1) developing a plan; 2) arranging operations in conformity to the plan; and 3) creating an environment which is favorable to the performances of the people belonging to the organization. It is a process which involves a high degree of uncertainty and unprogrammed decision making.

MILESTONES (MILESTONE EVENTS) —

Important events identified in a work flow of a project such that if not completed on time the project goal will not be attained on schedule or possibly not at all.

MISSION —

A mission is composed of several tasks and is itself a sub-goal. A mission is focused activity, or package of work, using a limited amount of project resources and staff at the middle level in the hierarchial work breakdown structure.

NETWORK (FLOW DIAGRAM OR WORK FLOW) —

Consists of interrelated activities or events which must be accomplished to reach the project goal. The flow diagram shows the planned sequences of accomplishment, interdependencies, and interrelationships of activities and events.

OPTIMISTIC TIME —

The time estimated for the completion of an activity when it is assumed that everything will go extremely well.

PLAN, IMPLEMENTATION —

A structured document to aid the project manager to implement a selected course of action.

POINT, PROCESS CONTROL —

A monitoring point, calendar date, dollars allocated, and performance standard, in the operational process of the project where one can conveniently determine deviations to control the process.

PROGRAM EVALUATION AND REVIEW TECHNIQUE (PERT)

A management system for planning and controlling many activities related to the accomplishment of an objective in a once-through effort.

PESSIMISTIC TIME —

The time established for the completion of an activity when it is assumed there will be difficulty, the task is uncertain, or there is unfamiliarity with the task.

PROJECT DEFINITION —

A process which involves the development of explicit statement of the project's primary objective goal and the necessary sub-objectives to reach the major goal. The development of a work breakdown structure is used as one technique in defining the project.

RESOURCE ALLOCATION —

Translating an approved plan into a schedule by assigning resources to accomplish the planned activities during a specific calendar period. The process of applying resources toward the accomplishment of a plan, procedure, policy, tactic, or strategy.

RESPONSIBILITY —

The obligation to use granted authority to direct that effort which is necessary to be performed according to plan.

SCHEDULING —

The translation of the plan into a time table showing the specific calendar dates for the start and completion of work.

SEQUENCE DIAGRAM —

Illustration of the interrelationship of activities or events to achieve a goal. The logic used in developing such a work flow sequence is antecedent-consequent logic where one activity or event is related to another by time.

STANDARDS —

The specification set for time, cost and performance at control points. If they are met, then the project is proceeding according to plan.

SYSTEM —

An entity, conceptual or physical, which consists of interrelated or interacting parts directed toward some overall goal or purpose. For management, a logical arrangement or interdependent and interrelated parts into a connected whole to accomplish a specified objective.

SYSTEMS ANALYSIS —

The process of breaking the system down into its interrelated parts. In project definition it is an orderly approach for defining a set of objectives or goals, for analyzing and describing a given organization structure using significant factors and communications, and then determining what arrangements of factors and communications will achieve the desired effect.

TASK —

A task, or in some cases a sub-task, is the smallest unit of action. A task is a single activity or an element of a work package which uses a single person of the staff and little resources and is at the lowest level of hierarchial work breakdown structure.

TRANSITION —

Institutionalizing the end product of a project or absorbing the effort into an existing organizational unit.

APPENDIX C
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